

# To Study the Antimicrobial Effect on Cotton Fabric of Natural Dye Extract of Tulsi with Myrobalan Mordanting Method

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**Abstract:** India is a heart for diverse natural resources and the traditional knowledge of health, the science of healing and curing diseases called ayurveda. Tulasi well-known plant from ancient time for its medicinal uses and holistic property. It available all over the world and helps in many skin disorders. it is effective in skin rashes, insect bites and itching. Leaves of this plant are effectively used in ring worm infections and lucoderma. Paste and juice of tulsi leaves help to reduceance, pimples and scars. The present paper is therefore an outcome of the effort to dye cotton fabric using tulsi petals. shade dried and powdered tulsi petals were used for dyeing of cotton fabric 100 gsm. fabric were pretreated with 10 % myrobalan in three method pre, post, simultaneous. The mordanted fabric next dyed with 20% of tulsi as per recipe. To analyses the antimicrobial activity and physical properties and recorded

**Keywords:** natural dye, mordant, tulsi, myrobalan

## 1. Introduction

Ocimum sanctum, know commonly as tulsi, is also known as "holy basil" or "sacred basil". This plant is often grown in Hindu homes for its medical and spiritual properties. Tulsi has been used in India, China and the Middle East for thousands of years. It became known as "sacred" or "holy basil" after it was introduced to European Christians. There are three different strains of tulsi. Rama tulsi has green leaves, Krishna tulsi has purple leaves, and the third, Vana tulsi, is a wild variety. There is a great deal of variety in the size and coloring of these plants depending upon geography, rainfall and plant type. Tulsi is used in Ayurvedic medicine as an adaptogen. Claims have been made that the herb helps people adapt to stress and is used to restore balance within bodily systems. Tulsi has been used to treat colds, stomach problems, and headaches, among other uses. It is usually ingested as a tea or dried powder. It is an vertical one. Hair stems up to 30-60 cm (12-24 in) tall, and simple green or ha-purple leaves have strong aromatic leaves and petiole up to 5 cm (2.0an). The stem are purple in long racemes in close spirals. tulsi cultivated for religious and medicinal purposes and for its immortal oil. I am widely known throughout the Indian subcontinent as a medicinal plant and a herbal tea commonly used in Ayurveda, and have an important role within the Vashna Trad tion of Hinduism, in which basic devotees promote hoi basil plants or leaves.

## 2. Material and Methods

### 2.1 Material

#### 2.1.1 Fabric

Scoured 100%cotton woven fabric, 100gsm, 30s count was used for dyeing.

#### 2.1.2 Dye and mordant

tlusi, Myrobalan, Ash water, Anattoo Seed

### 2.2 Methods

#### 2.2.1 Extraction of Mordant

The dried myrobalan powder of 10 gram was taken in dye bath with material liquor ratio of 1:30 at 8 PH in temperature of 60c for 30 min. the solution was filtered and stored in container

#### 2.2.2Extraction of Dye:

To take 20% of dried tulsi powder in a dye bath keeping material liquor ratio of 1:30 at 8 ph temperature of 60<sup>0</sup>c for 30 min. Then the liquid to be filtered.

#### 2.2.3 Mordanting

The calculated amount of myrobalan powder was in taken in dye bath at 20% of concentration for 30 minutes at 80<sup>0</sup>c, MLR of 1:30 after thirty minutes the mordented fabric was take out and was with shop water

#### 2.2.4 Dyeing

Dyeing was carried out in an open bath beaker dyeing machine equipped with programmable control of temperature and time. The wetted cotton fabric was entered into the dye bath containing 20% dye solution at 80c in material liquor ratio of 1:40 and dye was continued for 60minutes at the end of dyeing the dyed samples were rinsed, soaped with natural soap net water (annattoo seed), squeezed

#### 2.2.5 Determination of antimicrobial activity

Parallel streak method (AATCC tm 147) was used to determine the antibacterial activity of the dyed specimens. Dyed specimens were placed in intimate agar previously streaked with inoculums of the test bacteria, staphylococcus aureus and Escherichia coli. The bacteria inoculated agar plates were incubated for 24 h at 37<sup>0</sup>c. at the end of this period the plates were examine for interruption of growth along the streaks of inoculums beneath the specimen and for a clear zone of inhibition beyond its edge. The average width of the zone of inhibition along a streak on either side of the specimen was calculated using the following equation.  $W=(T-D)/2$

Volume 8 Issue 8, August 2019

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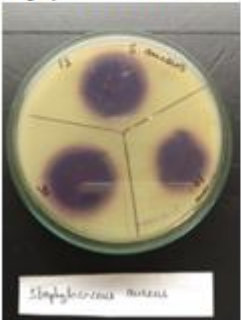
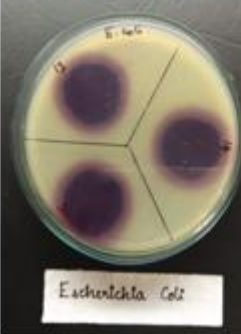
Where W=width of clear zone of inhibition in mm

T=total diameter of test specimen and clear zone in mm

D= diameter of the test specimen in mm

### 3. Result and Discussion

To study the antimicrobial zone of *staphylococcus aureus* and *Escherichia coli* effect on dyed cotton fabric with extract of tulsi with myrobalan mordant of pre ,post ,mordant. the following table show the zone value of antimicrobial zone .

S. No.	ORGANISMS	Zone of Inhibition(mm)		
		Fabric Samples (----µg/fabric)		
		Pre mordant	simultaneous	Post mordant
1.	<i>Staphylococcus aureus</i> 	26	19	21
2.	<i>Escherichia coli</i> 	27	23	24

### 4. Conclusion

In this research to optimized the mordant method on cotton fabric used with tulsi extract antimicrobial properties were studied. The pre mordanted dyed fabric recorded maximum zone value of 26 and 27 of *Staphylococcus aureus* and *Escherichia coli*

### References

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